

Atty. No. 2317

We claim:

1. Stormwater handling apparatus, for receiving storm water from a surface drainage system, which comprises:

an array of chambers buried beneath the surface of the earth within permeable media, for receiving and dispersing stormwater; and,

a solids retention subsystem, for receiving stormwater from said surface drainage system, for removing solids from the stormwater, and for discharging the resultant partly clarified stormwater to said array;

wherein the solids retention subsystem is spaced apart from said array within said permeable media.

2. The apparatus of claim 1, wherein the solids retention subsystem is comprised of a string of arch shape cross section perforated sidewall chambers having a geotextile running along the sidewalls.

3. The apparatus of claim 2, wherein a low-permeability membrane runs along the surface of the permeable media at the bottom of the arch.

4. The apparatus of claim 2, wherein the solids retention subsystem further comprises: woven geotextile running across the bottom the chamber and a finer mesh non-woven textile running along the sidewalls.

5. The apparatus of claim 1, wherein the solids retention subsystem is comprised of a string of arch shape cross section chambers having geotextile layer running along the surface of the permeable media at the base of the chamber.

6. The apparatus of claim 2, wherein the solids retention subsystem is comprised of chambers having dissolved-pollutant capturing materials in vicinity of said geotextile.
7. The apparatus of claim 6, wherein said dissolved-pollutant capturing materials comprise materials for capturing hydrocarbons or metal ions.
8. The apparatus of claim 1, wherein the solids retention subsystem is comprised of round cross section perforated pipe surrounded by geotextile.
9. The apparatus of claim 1 further comprising: a diverter, upstream said solids retention subsystem, along the stormwater flow path running from the surface drainage system, for channeling a portion of said stormwater directly to the array, when the stormwater inflow capacity of the SRS is exceeded.
10. The apparatus of claim 9, wherein the diverter has a first outlet connected to a pipeline running to the solids retention subsystem, and a second outlet connected to a pipeline running to the one or more chambers of the array; and, wherein the diverter comprises means for preventing flow through said second outlet until the elevation of stormwater in the diverter is higher than the elevation of said first outlet.
11. The apparatus of claim 10 wherein the means for preventing flow is a weir within the diverter.
12. The apparatus of claim 10 wherein the means for preventing flow is a valve.
13. The apparatus of claim 1 wherein the array is comprised of a multiplicity of rows of chambers running parallel to the length of the solids retention subsystem.

14. The apparatus of claim 1 wherein the permeable media is crushed stone.

15. The apparatus of claim 1 which further comprises: means for controlling water flowing from the chamber array to an external stormwater receiving point.

16. A method for handling stormwater, wherein stormwater is flowed from a surface drainage system into a subterranean stormwater system comprised of chambers within permeable media, which comprises:

flowing stormwater from the surface drainage system into a subterranean solids retention subsystem, removing solids from the stormwater, and discharging partially clarified stormwater into the surrounding media;

then flowing said partially clarified stormwater through the permeable media into one or more chambers spaced apart from the solids retention subsystem, so the stormwater may be then detained within, percolated from, or discharged from, the chambers.

17. The method of claim 16 wherein the solids are removed from the stormwater in the solids retention subsystem by a combination of settling and filtering.

18. The method of claim 16 which further comprises: first flowing the incoming stormwater from the surface drainage system into a diverter which is upstream from the solids retention subsystem; and, flowing a portion of the incoming stormwater directly into the chamber array when the flow of stormwater exceeds the capacity of the solids retention subsystem to receive the stormwater.